

First record of *Spottobrotula mahodadi* Cohen & Nielsen, 1978 (Ophidiiformes, Ophidiidae) in the Straits of Malacca, Malaysia

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Abstract. Three specimens of *Spottobrotula mahodadi* Cohen & Nielsen, 1978, collected from Perak, Malaysia in July 2023, represent the first record of the species from the Straits of Malacca. Previous records had been limited to the Andaman Islands and Ranong, Thailand in the Andaman Sea. The newly collected specimens are described in detail, with morphometric and meristic data provided.

Key words. Distribution, morphology, new record, fish fauna, Neobythitinae

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INTRODUCTION

The ophidiid genus *Spottobrotula* Cohen & Nielsen, 1978 (Ophidiiformes, Ophidiidae, Neobythitinae) is characterized by have many spots and blotches on the head, body, and fins. This genus includes three species (Nielsen et al. 1999, 2014): *S. mahodadi* Cohen & Nielsen, 1978, *S. mossambica* Nielsen, Schwarzhans & Uiblein, 2014, and *S. persica* Nielsen, Schwarzhans & Uiblein, 2014. *Spottobrotula mahodadi* was originally described by Cohen and Nielsen (1978) based solely on the holotype collected off Barren Island in the Andaman Sea. Later, Matsunuma et al. (2017) reported two additional specimens from the Thailand coast at Ranong, and Psomadakis et al. (2020) included newly collected material of *S. mahodadi* in their field guide to the marine fishes of Myanmar; the precise locality is not provided. All these records are from the Andaman Sea.

The Straits of Malacca comprise a narrow, funnel-shaped waterway from the northernmost tip of Sumatra and Phuket Island to south of Tanjung Piai (Malaysia). At its narrowest point, the strait is less than 50 nautical miles wide near One Fathom Bank (Permatang Sedepa), south of Perak (Rusli 2012). Not only does the narrow strait have increasing shipping and sea passage, contributing to the economic growth of the Southeast Asian region, but the strait is also rich in natural resources, such as fisheries and mangrove forests. However, there is a lack of information on the biodiversity of this area. In July 2023, three specimens of *S. mahodadi* were collected at a fish-landing port at Bagan Panchor, Perak, west coast of Malaysia, facing the Straits of Malacca. The specimens, which represent the first record of the species from the Straits of Malacca and Malaysia, are described here.

METHODS

Specimens were collected from a fish-landing station at Bagan Panchor, Perak, Malaysia in July 2023. Each specimen was given a tag number, photographed, and subsequently fixed and preserved following Seah et al. (2011). Morphometric and meristic data were taken following Nielsen et al. (1999, 2014). Specimens were measured to the nearest 0.01 mm using digital calipers. Standard length is abbreviated as SL. The specimens were deposited in the South China Sea Repository and Reference Centre, Universiti Malaysia Terengganu, Malaysia (UMTF). Previous occurrence records of the species are from Nielsen et al. (2014), Matsunuma et al. (2017), and Psomadakis et al. (2020).



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RESULTS

Spottobrotula mahodadi Cohen & Nielsen, 1978

Figures 1, 2

New record. Malaysia — PERAK • Bagan Panchor; 04.5295°N, 100.6553°E; 24 July 2023; Seah, Y.G. leg.; bottom trawl; 3 spec., UMTF11004–11006.

Local name. Belukor Keli Bintik

Identification. Photographs of one specimen (UMTF 11005) are presented in Figure 1, with meristic and morphometric data for the three specimens in Table 1. The specimens were identified as belonging to the genus *Spottobrotula* based on the following combination of characters, defined as diagnostic for the genus by Nielsen et al. (2014): head and body fully scaled; pelvic fin with two rays bound together with tough skin; no spines on preopercle; opercular spine short, not reaching posterior margin of opercle; a prominent skin flap above pectoral-fin base; 9–11 prolonged gill rakers on first gill arch; 25–42 pseudobranchial filaments; single median basibranchial tooth patch; granular teeth present on palatines; dorsal part of head and body with rather large dark spots, dorsal fin with about two large black blotches. The specimens were identified

Figure 1. *Spottobrotula mahodadi* (UMTF 11005, 227 mm SL) collected from Perak, Malaysia (Straits of Malacca). **A.** In fresh condition. **B.** Preserved.

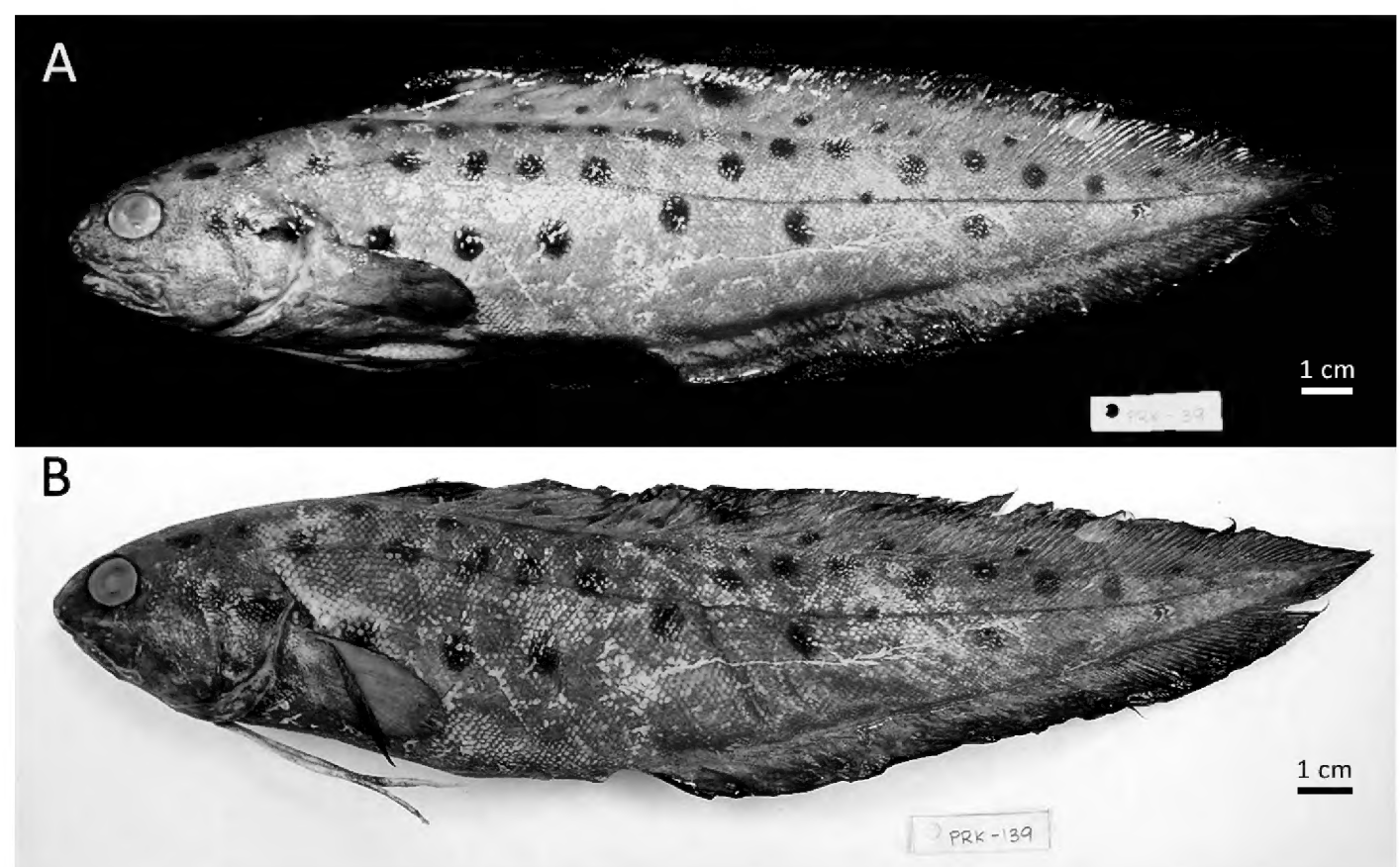
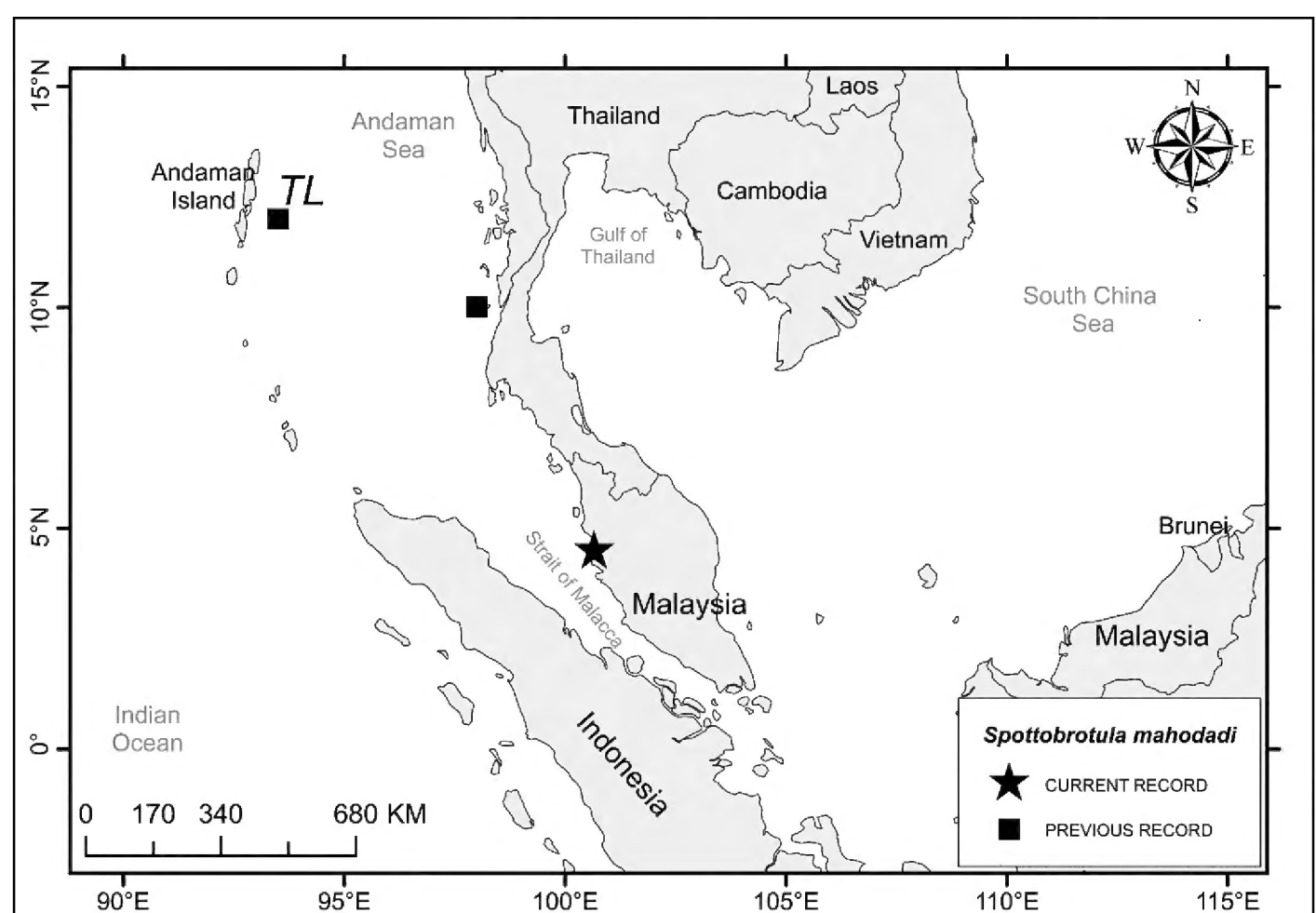


Figure 2. Distributional map of *Spottobrotula mahodadi*, showing previously known records (squares) and present record from Perak, Malaysia (star). TL indicates type locality. Also recorded by Psomadakis et al. (2020) from Myanmar in the northern Andaman Sea (precise locality unknown).



as *S. mahodadi* by the following characters, also based on Nielsen et al. (2014): large dark spots on head and body but lacking black band; 26–28 pectoral-fin rays; pelvic fin length 22.8–25.7% of SL; and pre-pelvic fin length 15.3–16.5% of SL.

Spottobrotula mahodadi is readily distinguished from *S. mossambica* by the absence of a distinct band on the postorbital region; and from *S. persica* by having large dark spots on the light-colored head and body, versus light spots on a dark background in *S. persica* (Nielsen et al. 2014).

The number of vertebrae in the specimens could not be determined, but other features observed were similar to the description and photographs of *S. mahodadi* presented by Nielsen et al. (2014), Matsunuma et al. (2017), and Psomadakis et al. (2020), including the characteristic dark spots and blotches scattered on the body (Figure 1).

Meristic differences, including numbers of dorsal-fin rays (96–105 in the newly collected specimens versus 104–107 in previously reported specimens), pectoral-fin rays (26–28 versus 30), pseudobranchial filaments (26–42 versus 29–40), total gill rakers (15–17 versus 16–18), and scale rows between dorsal-fin origin and lateral line (16–18 versus 18) between the present specimens and those of *S. mahodadi* previously reported (Table 1) may simply represent intraspecific variation. Some differing body proportions—i.e. body depth at dorsal-fin origin (19.1–20.8% of SL versus 18.1–19.0%) and eye window diameter (5.1–5.4% of

Table 1. Morphometric (% of SL) and meristic data of *Spottobrotula mahodadi* from Perak, Malaysia (Straits of Malacca; present study) and the Andaman Sea (based on previous studies).

	Present study			Matsunuma et al. (2017)		Nielsen et al. 2014
	UMTF 11004	UMTF 11005	UMTF 11006	KAUM-I. 33115	THNHM-F 13331	Holotype
Standard length (mm)	259	227	200	308.6	267.6	216
Morphometric measurements (% of SL)						
Head length	23.5	22.2	22.2	23.0	23.7	22.0
Body depth at dorsal-fin origin	20.8	19.1	20.0	23.0	23.7	22.0
Body depth at anal-fin origin	19.3	17.5	18.2	18.4	18.1	19.0
Snout length	5.1	5.0	4.9	—	—	—
Upper-jaw length	12.3	11.3	11.3	11.8	12.1	10.5
Posterior height of maxillary	2.9	2.7	3.0	2.9	3.0	2.7
Diameter of eye window	5.4	5.1	5.2	4.8	5.3	4.6
Interorbital width	5.9	6.2	6.0	6.2	5.6	5.7
Postorbital length	13.3	12.8	12.5	13.2	13.2	12.5
Pre-pectoral Length	23.3	22.7	22.9	—	—	—
Pre-pelvic-fin length	16.1	16.5	15.3	15.0	16.4	17.5
Pre-anal-fin length	44.2	46.7	45.1	45.8	44.2	43.5
Pre-dorsal-fin length	25.8	24.3	24.9	24.3	25.2	24.0
Pelvic-fin base to anal-fin origin	30.5	32.8	31.5	32.9	29.8	28.0
Pectoral-fin length	13.4	12.2	12.4	13.5	13.8	12.0
Pelvic-fin length	25.7	22.8	25.1	24.4	26.7	22.5
Meristic counts						
Dorsal-fin rays	103	105	96	107	105	104
Caudal-fin rays	9	9	9	9	9	8
Anal-fin rays	81	79	81	81	81	78
Pectoral-fin rays	26	28	27	30	30	30
Pelvic-fin rays	2	2	2	2	2	2
Pseudobranchial filaments	42	29	26	40	29	35
Long rakers on anterior gill arch	10	11	10	10	10	11
Total gill rakers	16	17	15	18	17	16
Dorsal fin rays before level of anal-fin origin	22	27	26	27	27	30
Scale rows between dorsal-fin origin and lateral line	16	17	18	18	18	18

SL versus 4.6–5.3%)—among them are most likely due to growth-related changes, although no significant relationships between such measurements and SL were apparent due to the low number of specimens.

DISCUSSION

The new specimens of *Spottobrotula mahodadi* reported here represent the first record of the species from the Straits of Malacca and Malaysia (Figure 2). Like the holotype of *S. mahodadi*, collected from relatively shallow water (ca. 40 m depth; Nielsen et al. 2014), the specimens from Perak were also collected in a shallow coastal area (depth often <40 m) characterized by turbid waters and a muddy bottom.

Each nominal species of *Spottobrotula* is restricted to a limited distributional region in the Indian Ocean: *S. mahodadi* from the Andaman Sea and northern Strait of Malacca (ca. 40 m depth), *S. mossambica* from Oman to the Mozambique Channel (22–82 m depth), and *S. persica* from the Persian Gulf (45 m depth) and off Socotra Island (480–515 m depth) (Nielsen et al. 2014). The biology of *S. mahodadi* is poorly known due to limited material. However, the conservation status of the species warrants investigation, particularly concerning its susceptibility as trawl bycatch. Because the fish diversity along the west coast of Malaysia remains poorly studied in comparison to the east coast (e.g. Matsunuma et al. 2011; Seah et al. 2020, 2021; Motomura et al. 2021; Zainal Abidin et al. 2024), further exploration of the marine fish fauna in the Straits of Malacca is necessary for understanding fish species richness and basic biological characteristics, particularly for poorly studied species such as *S. mahodadi*.

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ADDITIONAL INFORMATION

Conflict of interest

The authors declare that no competing interests exist.

Ethical statement

No ethical statement is reported.

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Author contributions


Data curation: YGS, SAMP, RO. Formal analysis: YGS, SAMP, RO. Funding acquisition: YGS, MRI. Project administration: YGS, MRI. Validation: YGS, SAMP, RO. Visualization: YGS, SAMP, RO, NH, MRI. Writing – original draft: YGS, SAMP, RO, NH, MRI. Writing – review and editing: YGS, SAMP, RO, NH, MRI, MM.

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Data availability

All data that support the findings of this study are available in the main text.

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